

CLAIMS

1. A device for preventing dislocation of a hip arthroplasty implant, the hip arthroplasty
5 implant comprising an acetabular cup to be mounted in the acetabular cavity of a pelvis, a femoral stem to be mounted in the proximal end of a femoral bone and having a femoral neck, and a femoral head to be mounted on the femoral neck and to be situated in a receiving cavity of the acetabular cup,
- 10 the device for preventing dislocation represents a substitution of the anatomic and physiologic fibrous capsule and comprises
- a tubular collar having a first open end having a first rim and a second open end having a second rim,
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- first fastening means for fastening the first rim in fixed relation to and at least partly encircling the receiving cavity of the acetabular cup, and
 - second fastening means for fastening the second rim to the femoral neck,
- 20 the device being characterised in that the second fastening means is adapted to fasten the second rim in fixed relation to and at least partly circumventing the femoral neck to prevent longitudinal movement of the second rim along the femoral neck and rotational movement of the second rim around the femoral neck.
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2. The device according to any of the preceding claims, wherein the tubular collar is elastic in at least a longitudinal direction.
3. The device according to any of the preceding claims, wherein the tubular collar is elastic
30 in at least a radial direction.
4. The device according to any of the preceding claims, wherein the tubular collar is an elastic mesh.
- 35 5. The device according to any of the preceding claims, wherein the first fastening means comprises a ring attached to the first rim, the ring having one or more protrusions on or incisions in a first surface, and wherein an accessible surface part of the acetabular cup, or of a flange to be fixed on the acetabular cup, has at least one corresponding incision or protrusion.

6. The device according to any of the preceding claims, wherein the second fastening means comprises a ring attached to the second rim, the ring having one or more protrusions on or incisions in an internal circumference, and wherein the femoral neck or a flange to be fixed on the femoral neck has at least one corresponding incision or protrusion around its outer circumference.

7. The device according to any of the preceding claims, wherein the second fastening means comprises a ring attached to the second rim, the ring having a slot, and a clamp formed as an open ring to be inserted in said slot, and wherein the femoral neck, or a flange to be fixed on the femoral neck, has an outer circumference with a shape corresponding to a shape of the inner circumference of said clamp. .

8. A method for stabilisation of a hip arthroplasty implant with a device for preventing dislocation of the hip arthroplasty implant,

the hip arthroplasty implant comprising an acetabular cup mounted in the acetabular cavity of a pelvis, a femoral stem mounted in the proximal end of a femoral bone and having a femoral neck, and a femoral head to be mounted on the femoral neck and to be situated in a receiving cavity of the acetabular cup,

the device for preventing dislocation comprising an elastic tubular collar having a first open end to be mounted in fixed relation to and at least partly encircling the receiving cavity of the acetabular cup, and a second open end to be mounted in fixed relation to and at least partly circumventing the femoral neck,

the method preventing dislocation of the hip arthroplasty implant by the steps of

- providing a joint of a hip implant in a neutral position with a tubular collar being fixedly mounted, and
- moving the joint of the hip implant away from the neutral position,
- executing a force restraining the movement of the femoral neck and a force pulling the femoral head towards the receiving cavity of the acetabular cup.

9. The method according to claim 8, wherein the movement of the joint is chosen from a group of movements containing:

- flexion movement in a sagittal plane,
- extension movement in a sagittal plane,
- adduction movement in a frontal plane,
- abduction movement in a frontal plane,

- external rotation in a transverse plane,
 - internal rotation in a transverse plane,and any combination thereof.
- 5 10. The method according to claim 8, wherein the movement of the joint is chosen from:
 - axial rotation around a longitudinal axis of the femoral neck,
 - planar rotations where the angle between the femoral neck and the acetabular cup changes,
 - combinations of axial and planar rotations, and
- 10 – any translation.
- 11. The method according to claim 8, wherein the force restraining the movement of the femoral neck increase proportionally to an amplitude of the movement.
- 15 12. The method according to claim 8, wherein the force restraining the movement of the femoral neck increase nonlinearly with an amplitude of the movement.
- 13. A method for mounting an device for preventing dislocation on a hip arthroplasty implant,
- 20 the hip implant comprising an acetabular cup mounted in the acetabular cavity of a pelvis, a femoral stem mounted in the proximal end of a femoral bone and having a femoral neck, and a femoral head to be mounted on the femoral neck and to be situated in a receiving cavity of the acetabular cup,
- 25 the device for preventing dislocation comprising
 - a tubular collar having a first open end having a first rim and a second open end having a second rim, the tubular collar being elastic in at least a longitudinal direction,
 - first fastening means for fastening of the first rim in fixed relation to and at least partly encircling the receiving cavity of the acetabular cup, and
 - 30 – second fastening means for fastening of the second rim in fixed relation to and at least partly circumventing the femoral neck,
- the method comprising the steps of:
- 35 – mounting the tubular collar to the femoral neck and positioning the femoral head in the acetabular cup with the leg containing the femoral stem situated anatomically,
- positioning the leg in a neutral position,
- fastening the first rim in fixed relation to and encircling the receiving cavity of the acetabular cup with the first fastening means,

- fastening the second rim in fixed relation to and circumventing the femoral neck with the second fastening means,
wherein the steps of fastening the first or second rim to the first or second fastening means, respectively, comprises the step of uniformly tightening or stretching the tubular
5 collar, so that the tubular collar during movement of the leg exerts a force restraining the movement of the femoral neck and a force pulling the femoral head towards the receiving cavity of the acetabular cup.

14. The method according to claim 13, wherein the step of applying the tubular collar to
10 the hip arthroplasty implant comprises the steps of mounting the tubular collar on the femoral neck so that the second rim encircles of the femoral neck and thereafter mounting the femoral head on the femoral neck.